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3/20/02

EFFICACY REVIEW

DATE: IN 3-13-02 OUT 3-18-02

FILE OR REG. NO. 432-763

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED February 12, 2002

DATE OF SUBMISSION February 12, 2002

DATE SUBMISSION ACCEPTED _____

TYPE PRODUCT(S): (I,)D, H, F, N, R, S _____

DATA ACCESSION NO(S). 454548-01, -02 & -03; D281631; S612179; Case
006590; AC:306

PRODUCT MGR. NO. 03-Layne/Sproat

PRODUCT NAME(S) K-Othrine® SC 5.0 Insecticide

COMPANY NAME Aventis Environmental Science USA LP

SUBMISSION PURPOSE Provide performance data in support of claims
for control of pantry pests (beetles, moths and
mites) with similar formulations and rates.

CHEMICAL & FORMULATION Deltamethrin 4.75%
(0.42 lb. per gallon soluble concentrate)

CONCLUSIONS & RECOMMENDATIONS The data presented in EPA Accession
(MRID) Numbers 454548-01, 454548-02 and 454548-03 were previously
evaluated in our review of September 10, 2001. Therefore, the re-
mainder of this presentation is a word-for-word repetition of that
review. The data presented in EPA Accession (MRID) Number 454548-
01, having been obtained from standard field testing meeting the
requirements of § 95-13(a)(1)-(3) and (5)-(7) on pp. 274-5 and
meeting the standard of § 95-13(b)(4) on p. 276 of the Product Per-
formance Guidelines, are adequate to demonstrate the ability of
deltamethrin concentrations much lower than those in the subject
product to residually control various stored products pests as rep-
resented by the rice weevil, Sitophilus oryzae, lesser grain borer,
Rhyzopertha dominica, rusty grain beetle, Cryptolestes ferrugineus,
and rusty flour beetle, Tribolium castaneum. Unfortunately, the
product used is not sufficiently identified to enable the concen-
tration to be determined. Nevertheless, the results of these
small-bin tests were as follows: there was no survival of the 4
species at 30 days after and the only progeny were a very few les-
ser grain borer larvae; at 6 months, there were significantly fewer
of all 4 species and no progeny of lesser grain borer (continued)

and rusty grain beetle, a very few rice weevil larvae and there was no significant difference in rusty flour beetle survival; at one year after treatment, only rusty grain beetle was controlled completely; there was a significant difference with rice weevil and no significant with lesser grain borer and rusty flour beetle; there was a significant difference in the progeny survival of lesser grain borer and rusty grain beetle and no significant difference with rusty flour beetle and rice weevil at the end of one year. All of the foregoing involved comparison with the untreated control. The remainder of this volume involved combinations of deltamethrin and chlorpyrifos-methyl and are not applicable to the subject product. MRID No. 454548-02 contained data on the residual susceptibility of Indian meal moth, *Plodia interpunctella*, to 3 application rates and 4 exposure times with deltamethrin dust at 0.05% active ingredient, which is intermediate between the maximum label concentration used for pantry pest control with the subject product, namely 0.03%, and the cleanout rate of 0.06% this is to be used only for severe infestations and longer residual control. Results with the 56 milligrams per 0.016 square meter rate, which is equivalent to 2.926 grams per square yard or 325 grams or 0.71675 pound per 1,000 square feet and corresponds to 1.45625X the maximum volume to be used in preparing the 0.06% concentration of the subject product, were as follows: adult emergence at the end of 9 weeks was 47% with 6 hours exposure, 55% with 12 and 24 hours exposure and 26% with 1 week exposure. The 8 weeks results were 40%, 17.5%, 20% and 10%, respectively. Results with the 38 mg/0.016 sq. meter rate, which is nearly identical to the maximum volume to be used in preparing the 0.06% concentration of the subject product, were as follows: adult emergence at the end of 9 weeks was 60% with 6 hours exposure, 78% with 12 hours, 72% with 24 hours and 41% with 1 week exposure. The 8 weeks results were 25%, 23%, 44% and 10%, respectively. The data presented in MRID No. 454548-03, in which deltamethrin dust at 0.05% active ingredient, the same rate as in MRID No. 454548-02, demonstrate the ability to residually control 3 species of stored products beetles, the confused flour beetle, *Tribolium confusum*, the red flour beetle, *T. castaneum*, and the lesser grain borer, *R. dominica*, on 3 surfaces, namely plywood, concrete and tile. The lesser grain borer and the red flour beetle were readily controlled with 3.54 gm per sq. meter, and there were no significant differences among the 3 surfaces or between the two methods of exposure. The results with confused flour beetle were more complex, varying with surface, generally shorter residual effects on wood than concrete or tile, and exposure, generally longer residual effects when beetles were not removed from treated surfaces after the initial 24 hour exposure. Survival was about 60% on wood, 20% and 10% on concrete and tile at 10 weeks with 24 hour exposure; <20%, <10% and <10% when removed after 96 hour exposure; >80%, >40% and 20% when not removed after exposure; and 75%, 40% and 20% when exposed for an additional 96 hours (120 total). Overall, survival at 10 weeks was about 2% with 24 hours and 2% with 120 hours exposure when results with the 3 surfaces combined. 3.54 gm per sq. meter = 1.77 mg a.i. per sq. meter. Note this is the same rate used in MRID No. 454548-02.

RL Vern L. McFarland, IB